The Driller

MARCH, 1952

"I couldn't ask for better performance"

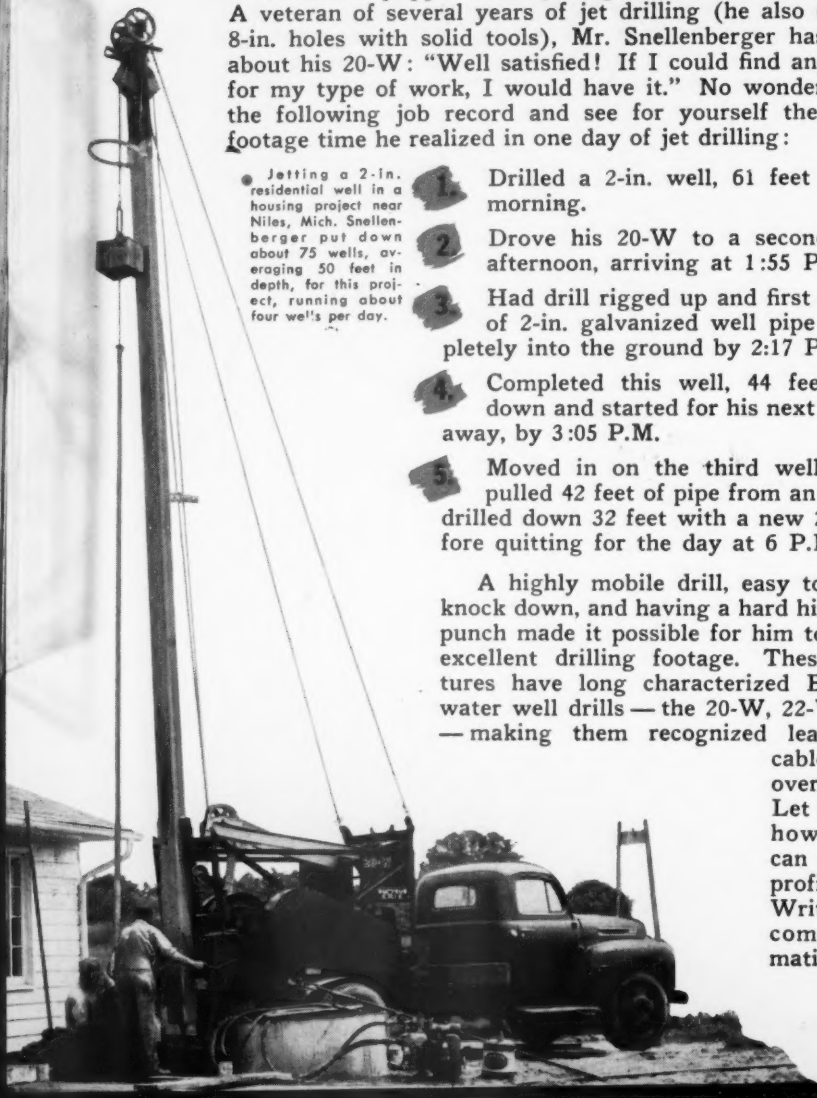
. . . says driller C. E. Snellenberger of South Bend, Indiana, about his Bucyrus-Erie 20-W water well drill.

For drilling 2-in. to 4-in. diameter water wells by the jetting method, Mr. Snellenberger uses a truck-mounted 20-W drill equipped with jetting tools and a 500-pound maul. A veteran of several years of jet drilling (he also drills 4-in. to 8-in. holes with solid tools), Mr. Snellenberger has this to say about his 20-W: "Well satisfied! If I could find anything better for my type of work, I would have it." No wonder! Look over the following job record and see for yourself the phenomenal footage time he realized in one day of jet drilling:

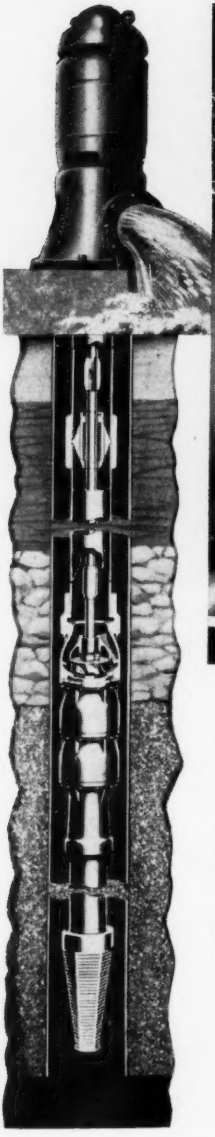
• Jetting a 2-in. residential well in a housing project near Niles, Mich. Snellenberger put down about 75 wells, averaging 50 feet in depth, for this project, running about four wells per day.

1. Drilled a 2-in. well, 61 feet deep, in the morning.
2. Drove his 20-W to a second job in the afternoon, arriving at 1:55 P.M.
3. Had drill rigged up and first 18-ft. section of 2-in. galvanized well pipe driven completely into the ground by 2:17 P.M.
4. Completed this well, 44 feet deep, tore down and started for his next job, 12 miles away, by 3:05 P.M.
5. Moved in on the third well, rigged up, pulled 42 feet of pipe from an old well and drilled down 32 feet with a new 2-in. well before quitting for the day at 6 P.M.

A highly mobile drill, easy to set up and knock down, and having a hard hitting drilling punch made it possible for him to realize this excellent drilling footage. These same features have long characterized Bucyrus-Erie water well drills — the 20-W, 22-W, and 24-L — making them recognized leaders among cable tool rigs all over the country. Let us show you how these rigs can mean added profits for you! Write today for complete information. 130W51C



BUCYRUS-ERIE COMPANY • South Milwaukee, Wisconsin



● The Deming Deep Well Turbine Pump illustrated was photographed in an Ohio factory where plant operations are entirely dependent on water supply. Capacity of the pump is 650,000 gallons per day. Ample water is always available to meet peak load demands as the pump supplies three 7500 gallon storage tanks of which two are shown in the photograph.

Deming Deep Well Turbine Pumps are built for wells 4 to 16 inches, or larger, with motors from 1 to 250 H.P. and in a complete range of capacities from 15 to 3500 G.P.M. These pumps are also made with flexible coupling drive, combination motor-right angle drive and combination motor-belt drive to meet various conditions.

Write for illustrated BULLETIN 4700

THE DEMING COMPANY, 512 Broadway, Salem, Ohio

DEMING DEMING DEPENDABLE PUMPS **PUMPS**

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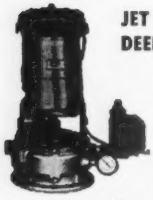
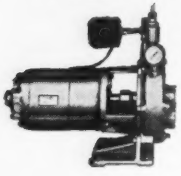
Whitewater

Interested in bigger pump profits? Sure you are! And profits can be yours if you sell the complete line of quality *Whitewater* pumps. Stock up today and add up the profits tomorrow!



JET TYPE DEEP WELL PUMPS

Available in five sizes from ¼ h.p. to 1 h.p. Efficient pump body design practically eliminates repriming. Scientific designing and balancing of rustproof parts assures long, quiet, trouble-free service.



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Mount one of these test-proved pumps on 10 or 18 gallon tanks to meet your home or business requirements. Available in five sizes ranging from 250 to 500 g.p.h. Standard size vertical tanks available.

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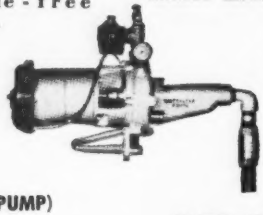

CELLAR (SUMP PUMP) DRAINERS

This pump requires no special support or foundation . . . will handle up to 3,200 gallons of water per hour without straining the pump mechanism. The line includes standard, brass fitted, and all brass models in four styles.

WATER (SOFTENERS) CONDITIONERS

Four models in four sizes, all furnished with the new, high capacity NALCITE HCR. Maximum performance assured on even the hardest water. Simple to operate. Available in standard and Solo Valve models.

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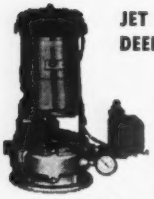

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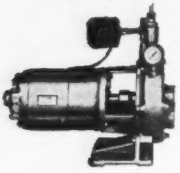

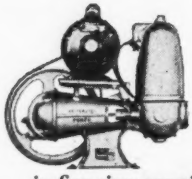

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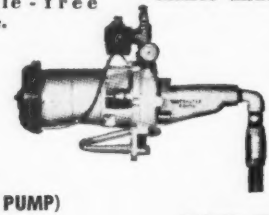

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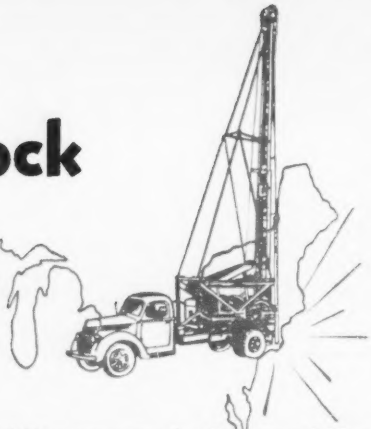
Drilling in Rock in Rhode Island



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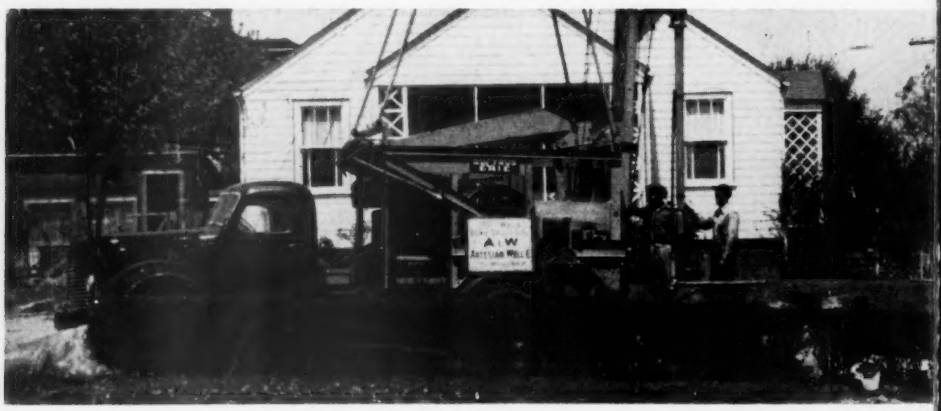
COMING into the well drilling business in 1932 by way of the pump dealer's route, Harold Worrall, owner of the A & W Artesian Well Co., North Smithfield, R.I., has seen hard work, competent management, honest dealings and strict attention to business pay off steady dividends through the years. Today, his firm is one of the outstanding drilling concerns in the central New England area.

Beginning in a small way, the Rhode Island company is now a prosperous concern with six Bucyrus-Erie machines—two 24-W's, two 24-L's and two 22-W's—putting down wells within a 100-mile radius of North Smithfield.

Sub-surface formations in the territory consist mostly of hard granite, the ledge of which is generally found at about 30 feet below ground level. This type of structure, of course, makes drilling difficult. "Drilling up here," Harold said, "requires the use of heavy equip-



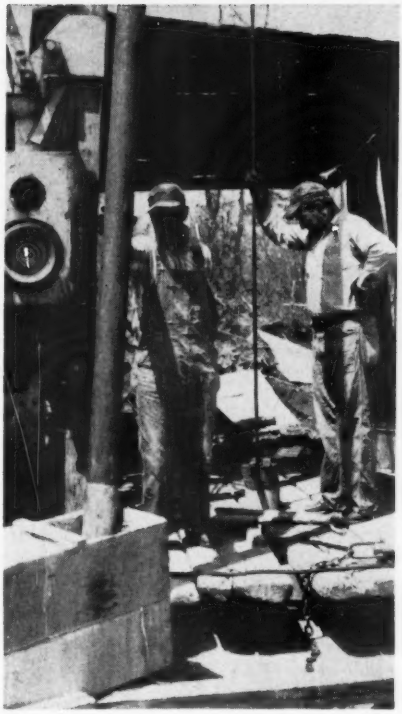
One of A & W's 24-W's drilling 6-in. residential well at Union Village, R. I. Note the cylinder rod device for testing the well. Completed at 160 feet, it pumped 8 gpm.

ment capable of carrying plenty of steel. We often have to load our rigs to maximum capacity. A fair average in our locality is only 12 feet drilled per ten-hour day."

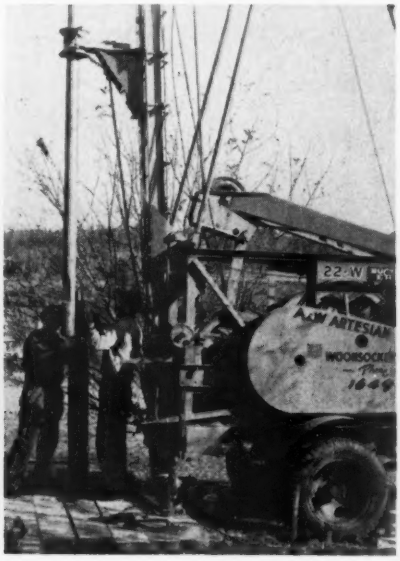
"This hard granite is tough on bits too," he added. "We have to use many bits to cut a hole. Our drillers sharpen bits about every two feet, using as many as five bits a day." A forge and blower are mounted on each rig so the bits, in most cases, are dressed right on the job.

Drilling in the area becomes more difficult when the rock is slanting. This condition makes it very easy to run a crooked hole which it is almost impossible to straighten out once the tools have gone off on a tangent.

Half of the company's annual total of jobs are wells drilled for farms, while wells for rural or suburban residences account for another 30%. The balance of work is evenly divided between industrial and air-conditioning wells. Diame-



Al Ferria (left) and Herb Worrall shown at 6-in. farm well job that went down 390 feet with 24-L.



Cecil Worrall (right) and Al Ferria are preparing 22-W to start drilling 8-in. suburban well near Smithfield, R. I.

Above: Edwin Adams and Arthur Girard, not shown, putting down another suburban home well near Smithfield.

Left: Close-up shows cylinder rod testing device in operation.

ters run six, eight, and ten inches, depending on the type of well and the yield which will be required. The average depth is 175 feet.

The deepest well ever drilled by Worrall and his men went 1,000 feet. This was an 8-in. industrial well drilled about 1941 with a 24-W for a wire works factory near Worcester, Mass.

Abnormally large flows of water from wells are also unusual in the company's operating territory. In spite of this, Worrall's men brought in a well once that yielded 400 gpm on test. This was an 8-in. industrial well drilled with the company's first rig, the 33-W, for a jewelry manufacturer at Attleboro, Mass.

In addition to drilling water wells, which comprises about 95% of its business, the A & W Artesian Well Co. sells and services pumps. The company handles the Burks, Deming and Pomona lines. The scope of the pump business is such that three men are kept busy with it full time.

(Continued on page 26)

Modern 32 x 64-ft. shop and storage warehouse was built in 1947. Firm's office (not shown here) is located at right.

VIBRATING Wells to Boost Yield

By H. A. Mylander, A.S.M.E.
District Engineer
Water Supply Analysts, South Pasadena, California

Part I

TODAY, more than 25 million people depend on deep wells for domestic water. Add to this the unrecorded thousands of irrigation and industrial wells in the south and the southwest, and it is apparent why some sections of the country periodically experience water shortages. These shortages were recently aggravated by a sustained drouth in all sections of the United States.

This article is of primary interest to drillers in California, Arizona and other parts of the Southwest where most of the light walled "stove-pipe casing" is used —perforated at the water bearing strata to permit water to enter the casing at different levels. However, drillers everywhere should find the article of interest. It is presented in two parts.

Nature, in some sections, has been prolific with water, in others almost miserly. In addition, a large influx of population and rapid industrial growth in many areas have imposed a tremendous draft on underground water. As a nation, we have not practiced a balanced economy of the natural water reserves any more than of the forests and timber supply. We have used up the recharge, available only by annual rainfall, and have gone far beyond this by drawing from geological reserves, which cannot be replaced.

Limited conservation is being practiced in some areas by "Save Water" campaigns, ascending water rates and even rationing of water.

Our surface water projects are largely aimed at the construction of dams with the combined purpose of conserving water, increasing domestic and irrigation supplies as well as protection from damaging floods and unnecessary erosion. Methods have been developed for increasing the probability of rainfall by the use of dry ice or by cloud seeding with suitable chemicals from air-borne or ground generators. The waste of sewage plant effluent is being reduced steadily by modern and improved equipment and techniques. Much research is currently in progress to develop an economical method of reducing the salinity of sea water to make it suitable for irrigation and sanitary use, thus reducing the demands of our limited potable water

supply from water wells. Present methods are still quite cumbersome and expensive.

In producing water from drilled wells, we are faced with costs in initial investment, maintenance costs and continuous power costs. We are naturally concerned with the quality, quantity and unit cost of production from these wells. The well may be an efficient or inefficient system, measured in terms of the usual standards e.g. the cost vs. revenue from the salable commodity. If the arithmetic involved reveals that the well is inefficient, troubleshooting should be started. This article deals with symptoms and one of several improvement methods.

A section of perforated casing removed from well is shown here. Note incrustation that all but closes perforation.

Sick Wells

If proper records have been maintained, it will be noted that many wells lose productivity out of all proportion to the declining water table. Wells in which the drawdown, or the difference between standing and pumping levels increases faster than other wells in the vicinity, might be termed "sick" and the reason for the loss of productivity has been the subject of extensive scientific and operational analysis. As increases in draw-down result in a loss of pump efficiency and a greater pumping lift with a resultant decrease in the output of precious water, it is uneconomical to permit such a condition to exist. Wells become "sick" due to three principal causes: (1) "Sanding-off," a condition caused by the productive zones being buried with sand; (2) fines in the formation that seal off the coarser layers, and (3) obstructions in the perforations and formations, such as growths, deposits and incrustations.

Methods Currently Used

The methods in current use by well drillers and well servicing firms to redevelop or reactivate wells are chemical and mechanical processes. Chemically, wells may be improved by the use of acid, chlorine, and Calgon in various dosages. Chemical treatment is aimed at specific varieties of growth. Of the mechanical methods, such as backwashing, air lift, dry icing, and swabbing; the tests "before" and "after" show swabbing to be the most beneficial, and the results were short-lived. This method requires the pump to be removed and reinstalled, including several day's work inside the well with special tools.

Incrustation is the most prevalent cause of loss of production in wells. Incrustation is generally described as any clogging or stoppage of the perforated area of a well casing, including the interstices of the water bearing formation immediately adjacent. Incrustation takes the form of (1) a hard, brittle, cement-like deposit caused by magnesium and sodium sulphate, or (2)

a soft pasty sludge which fills the voids in the formation and forms a soft deposit on the edge of the perforations in crater-like structures, later completely sealing over an opening with a small irregular mound. The soft incrustation is usually calcium, or magnesium carbonate.

Causes of incrustation, in order of their occurrence, are:

1. Incrustations due to chemical precipitation of materials carried in solution up to the well casing by the water being pumped, such as the sulphates and carbonates.
2. Incrustation due to the physical deposition of material carried to the casing in suspension in the water, such as clays, silts, mica, and alluvium. These are generally classed as "fines" and will seal off a well as thoroughly as the chemical deposits.
3. Stoppage due to growth of iron bacteria in the formation adjacent to the well, because of a solution of iron or manganese being carried in the water. This condition has been difficult to cope with because the bacteriological growths are deeply embedded in the voids of the formation and are beyond access.

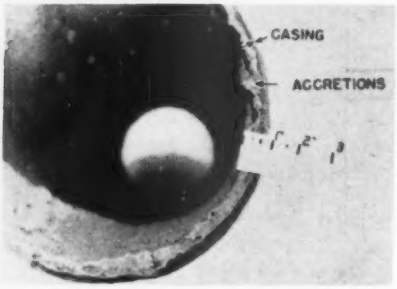
All ground water is considered to be incrusting, as can be confirmed by observing the area surrounding a slight leak. Usually, it will be coated with a whitish substance which is largely calcium carbonate. Of the cases of incrustation studied, 90% are due to precipitation of the material carried in solution up to the well casing. The chief incrusting agent is calcium carbonate which serves to cement the particles of the formation together, and make the actual deposits or impervious seal, at the perforated area.

The accepted theory on the accelerated formation of incrustation at the perforated area is based on the knowledge that all ground water contains free carbon dioxide gas, absorbed when the water fell as rain, snow, or sleet. Water will absorb more carbon dioxide when the temperature is reduced and pressure increased, thus it is reasonable to expect more pronounced effect in the deeper, cooler wells. The carbon dioxide gas and the water form a mild carbonic acid which is sufficiently active chemically to dissolve limestone by the formation of soluble bicarbonates and other elements in the path through the

Looking down inside of removed well casing which shows crust that forms inside. Note nodular accretions that build up, blocking perforations.

sub-surface formations. These mineral salts, gases and extraneous matter are precipitated or released in accordance with definite physical and chemical laws.

The chemical balance of the ground water is upset by changes in temperature, pressure, and rate of flow induced by pumping. Gases are given off and mineral salts, with extraneous matter, are deposited. Therefore, incrustation starts when pumping is commenced as the pressure in the area is reduced by the difference between standing and pumping levels, or the draw-down. This accounts for the heavy deposit at the edge of perforations and gives substance to the old recommendation that, when incrustation is expected, the production rate be decreased, to reduce the precipitation of the solids. This, in the face of declining water tables and increased water requirements, is an unpopular remedy and seldom observed.



Thickness of accretions as compared to original casing is measured. The incrustation varies in hardness, depending on type of foreign matter in water in the area.

A method of removing this incrustation, thereby increasing the production of a well, without endangering the structure of the well, was the aim of several practical water works engineers. A starting point was derived from the oil industry which has used explosives for the initial development and for redevelopment of oil wells, for many years. Also investigation revealed, that explosives had been used in water wells for redevelopment quite extensively in Southern California and in some other sections of the country. It was called "shooting a well" but no records were kept as to benefits obtained, and explosives used varied.

Under supervised tests the benefits obtained were most promising, but there were hazards to overcome. It was found that the magnitude of the explosion must be reduced and sustained over a longer period of time to avoid damage while producing maximum cleaning action. Two of the foremost consultants in explosives were engaged, and field tests on actual samples of casing, lowered into an abandoned well, were conducted. Fundamental formulas for maximum pressure created by an explosive and bursting strength of various steel tubes, were confirmed. By using a proper factor of safety between times, it remained only necessary to obtain explosives suitably graded down in energy, properly spaced and detonated at proper intervals of time, to accomplish the objective.

Vibratory Explosives

The method thus invented was tested under actual operating conditions and showed sufficient promise so that Norman A. MacLeod, Altadena, Calif., immediately filed patent claims. Actual work, using

(Continued on page 28)

NEWS of the month

Empire State Assn. Elects '52 Officers

At the annual meeting of the Empire State Water Well Drillers Assn., Trinkaus Manor, Oriskany, N. Y., the following officers were elected to serve in 1952, according to the association report.

James Stoutenburg, Glenford, was elected president, Fred Merrill, Liverpool, vice pres.; Clarence Crandall, Pine City, sec'y-treas., and Lee Bayes, Rome, director for three years.

Talks were given by representatives from the New York branch of the OPS office and the State Geological Survey office. Robert Storm, representing the NWWDA, explained the efforts of the National association in getting increased allotments of steel for pipe used in the industry.

Minnesota Convention Program Scheduled

A tentative program for the Minnesota Water Well Contractors Assn. meeting, to be held March 20-23 at the Hotel Nicollet, Minneapolis, was released by association officers.

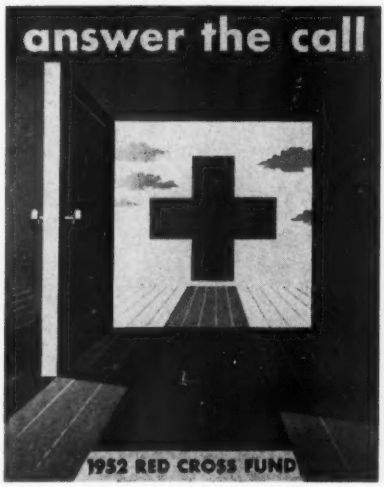
On the first day addresses of welcome are planned by association president, John S. Hoge, and governor of Minnesota, E. C. Anderson. The Minneapolis Advertising Club is expected to have a representative talk on "What Advertising Can Do" and national association president, Oliver will address the convention on "How the Well Business Looks Nationally".

Friday, the second day of the convention, representatives from the State Board of Health and the Agriculture, Dairy and Food Commission are scheduled for talks. "Heat Treatment of Well Drill Bits" by R. C. Woodward, consulting Metallurgist of the Bucyrus-Erie Co., and "Fishing Tools" are subjects also planned for that day. The annual banquet will be held in the evening.

The business meeting is scheduled for Saturday culminating in election of officers after which there will be a board of director's meeting.

NPA Releases Modified Procedures

Procedure to be followed by Water Well Drillers and Prime Contractors in Applying for Authorized Construction Schedules for Water Wells was released by NPA Jan.



17, 1952, according to Defense Production Record of that date.

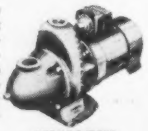
The purpose of the release was to modify procedures established under CMP Reg. 6 and Dir. 1 for obtaining controlled materials for water well drilling and to insure drillers a supply of steel and copper for each quarter's operations.

The new directive requires water well drillers to apply quarterly on Form CMP-4C for steel and copper allotments needed for all anticipated construction not exceeding six tons of carbon steel and 200 pounds of copper per project per quarter not later than 45 days before the quarter commences.

It also requires prime contractors to submit Form CMP-4C for each individual project, except where the water well construction project is part of another construction category for which separate application must be submitted.

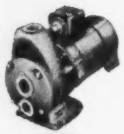
BUILD GOOD WILL BY SELLING "AURORA"

We not only offer you the superb customer pleasing performance of Aurora-Jet packaged water systems but a complete line of centrifugal and turbine-type pumps for every purpose. Write for complete facts.



SHALLOW WELL

AURORA-JET WATER SYSTEMS



DEEP WELL Sizes to 4500 G.P.H.

— for watering feeder stock, hogs, dairy herd, milk coolers, irrigation implement and car washing—AND—for laundry, dishwashing, baths, garden watering — AND — strong emergency streams for Fire Protection. EASY TO CONVERT SHALLOW TO DEEP WELL.

Write for Descriptions

AURORA Always PUMPS — AURORA PUMP COMPANY

58 Loucks St., Aurora, Illinois

Under the regulation a water well driller cannot be designated as a prime contractor for purpose of submitting an application for construction project not exceeding six tons of carbon steel and 200 pounds of copper.

It also prohibits a water well driller from using the self-authorization procedures prescribed in Dir. 1 to CMP Reg. 6.

Get In The Scrap

How about it? Have you turned in the scrap metal from around your shops and yards? Scrap is necessary to make badly needed well casing, drill bits, fishing tools, and the rigs themselves.

Read this excerpt from Scrap Round Up. "We simply cannot meet the military demands and maintain even a reasonable civilian production without vast quantities of iron, steel, copper, brass, bronze, aluminum, lead, zinc and other essential metals. This production calls for enormous amounts of scrap in all these fields. Those who make and use machinery have scrap. *GET IT IN.*"

—Charles E. Wilson

Indiana Has New Convention Site

The 21st Annual Convention of the Indiana Well Drilling Contractors Assn., Inc., will be held at the new Conservation Building, State Fair Grounds, Indianapolis, Ind. April 9-11, according to an announcement from association secretary H. K. Carr.

The site was obtained through the co-operation of the Indiana Conservation Dept. It is felt this is the best convention site thus far. It includes a large meeting room, with motion picture facilities, a very

Greatest Name in Cable Tools

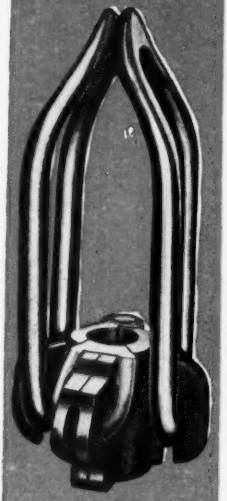


FIG. 301
Casing Elevator

FOR SAFETY SAKE: Links can not come loose or elevators open, while lowering or raising pipe. NOTE: One solid piece (weldless) latch — so designed that no stress is carried by lower end of latch but is taken up immediately back of latch slots, at latch's strongest part.

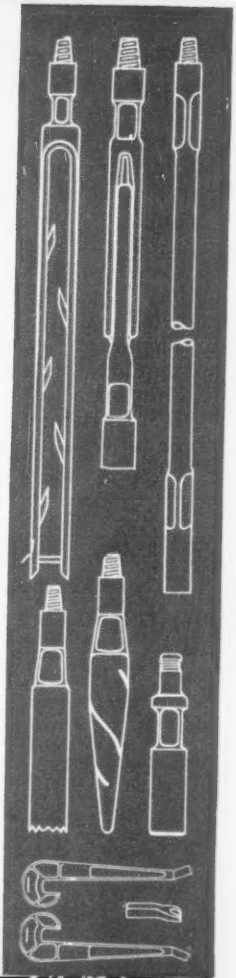
Acme

TRUSTWORTHY SINCE 1900

Strength & Safety . . . Salient Points in Acme Elevators

Use Acme's Regular FAIRS Type Casing Elevators for raising or lowering casing or pipe. Used in sets of two (casing spider and slips NOT required). One elevator supports the pipe, while the other is used for handling joint above.

Made of cast steel; bodies machined to fit pipe and shoulder evenly against collars. Uniform forge-welded removable links. Heavy enough for running long strings of pipe — with safety — yet light enough for easy handling.



The tool featured above — one of 95 in our new Catalog — is fashioned by 51-years of superior "know-how" . . . providing more of EVERYTHING needed in an Acme String.

Mail penny postal NOW for your free copy of Acme's new 36-page Catalog and Tool-use Manual — expressly compiled and packedful of "cashable" information for Water Well Drillers.

Acme Fishing Tool Co.

PARKERSBURG, W. VA.

ACME DRILLING & FISHING TOOLS Since 1900

To-be-Sure—Always Ask for Acme's.

large exhibition hall, and plenty of adjacent exhibit space for outdoor equipment.

Quarterly Meeting Held in Florida

From the monthly Bulletin of the Florida Well Drillers Assn. comes word that the second quarterly meeting of the association was held in Orlando Jan. 5.

Method of electing officers was discussed and is to be continued at an open hearing at the next meeting. A letter from NWWA was read. Co-operation of all members is sought to ascertain the total amount of well pipe used in 1951. The purpose of this is that the NWWA is trying to get better recognition in Washington for an allotment of steel to be ear marked and used only for water well purposes.

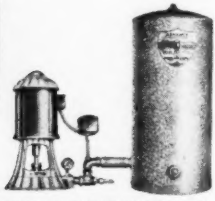
The next meeting is to be held April 12, at the Lamar Hotel, Orlando.

Drill License Law Amended in W. Va.

A query from a reader in West Virginia concerning license fees for drill rigs in that state was answered in the mailbag section of the January issue of THE DRILLER. Our suggestion was to See State Hy. Dept. on License Fees.

Since that time we received more definite information on this question from Harry R. Pauley who is chairman of the Commission on Interstate co-operation in the state legislature. He indicates that he

MAKE MORE MONEY
in running water with these
PROFIT-LEADERS!



MEET MR. MULTISTAGE—Breaking performance records for extreme high pressure shallow well pumping, or deep well pumping to 300 feet! One of a complete line of multistage models for deep or shallow wells. Inquire.

HEAD OF THE HOUSEHOLD—Advance V-Series of centrifugal, Hydro-ejector type pumps, from ¼ to 10 H.P. Pumping levels to 200 feet. Streamlined, quiet, dependable. Write for catalogs.

ALL-AMERICAN. Advance's newest: America's finest—a 100% self-priming shallow well system, loaded with exclusive, automatic features. Available with vertical tank or as package unit. Thousands sold!

Distributors Dealers Increase your share of running water PROFITS in your own community. Sell Advance — the leader. Nationally advertised and merchandised.

FREE... New 20-Page Color Brochure
Write nearest office today

ADVANCE PUMP COMPANY

BERKELEY, CALIF. HAMILTON, OHIO

"Pioneers of the world's standard Hydro-Ejector Type pump"

has been a drilling contractor under the name of Pauley Drilling Co. and has apparently been active in behalf of well drillers in the House of Delegates. Excerpts from his letter follow:

"During the last session of the West Virginia Legislature the law was amended to class drilling machines, which are mounted on trucks, as special equipment.

"This class reduces the license fee to a flat $15.00 per year rate and the owner is issued license under the 'S' classification.

The only condition for this class is: The machine must be a permanent fixture on the truck, and used for no other purpose.

Machines that are Trailer Mounted carry a fee of $15.00 for the trailer license fee, and the tractor would be classed as any other vehicle of that class."

Plan New Pump Manufacturing Plant

A new pump plant is being planned by Fairbanks, Morse & Co. in Kansas City, Kan. Contracts, as yet, had not been let for the actual construction of the plant which is scheduled to begin this spring. The new plant will have a machine shop containing 190,000 square feet of floor space, a foundry with 150,000 square feet, and an office building with 20,000 square feet.

Technical Talks Highlight Iowa Meet

One hundred and fifteen contractors, drillers, manufacturers' representatives and technical men attended the 23rd annual convention of the Iowa Well Drillers Assn. held in Des Moines, Iowa, Jan. 23 and 24.

After S. R. Ames, association pres-

MACWHYTE HI-LASTIC WIRE LINE

For sharper, harder blows!

The greater elasticity of Macwhyte Hi-Lastic allows tools to strike sharper, more powerful blows . . . for faster, smoother drilling. It keeps the bit turning better . . . reduces tendency for the hole to get out of round and for the bit to channel. Like all Macwhyte Wire Lines, Macwhyte "Hi-Lastic" is internally lubricated.

Send for Circular No. 49-14R

It lists and describes Macwhyte Drilling and Sand Lines.

Get the correct line for your equipment from any Macwhyte distributor or mill depot or write to:

MACWHYTE COMPANY
2939 Fourteenth Avenue
Kenosha, Wisconsin

Mill Depots:

New York 4, 35 Water Street
Pittsburgh 19, 704 Second Avenue
Chicago 6, 228 So. Desplaines St.
Minneapolis 3, 1213 Harmon Place
Ft. Worth 1, P. O. Box 605
Portland 9, 1603 N.W. 14th Avenue
Seattle 4, 87 Holgate Street
San Francisco 7, 141 King Street
Los Angeles 21, 2035 Sacramento St. 1013

ident, called the two-day meeting to order, the group swung into a full schedule of technical discussions. Featured speakers on the opening day's program were F. C. Foley, R. N. Morris, and G. A. Norgaard.

Foley, geologist and head of the division of groundwater geology, Illinois State Geological Survey, told of the problems faced by the Army in locating pure water supplies in North Africa and Italy during World War II.

Morris, chief chemist, state hygienic laboratory, Iowa City, discussed the "Laboratory Control of Well Water Supplies". He said that 70% of the private water supplies in Iowa are polluted, that figure being based on samples of well water received at the laboratory for testing water wells throughout the state. Morris called on the drillers to help the Iowa health department "by watching for such polluted wells and by cautioning residents not to drink water from them."

Norgaard, economic geologist for the Iowa Geological Survey, spoke on "Oil and Gas Possibilities in Iowa."

Two more technical sessions claimed the drillers' attention the second day. A panel discussion on the "Sanitary Construction and Maintenance of Wells" highlighted the morning meeting. Earlier, C. R. Murray of the U.S.G.S., which is cooperating with the Iowa Geological Survey in ground-water investigation, spoke on the "Legal Aspects of Ground Water Control." Members of the panel board were J. B. Cooper of the Iowa Geological Survey; M. V. Stephenson, public health engineer, Manchester, Iowa; and Art Bruinekool of Pella, Iowa, a drilling contractor.

They asserted that well drillers have the responsibility of educating the public about how to locate private wells where the water will be fit for human consumption.

Built to be *BETTER*

EVERITE Pumps

- *Quality* featured
- *Priced* competitive
- *Simplicity* in design

Write today for detailed information on this complete line of Water Systems that are *built to be better!*

THE EVERITE PUMP & MANUFACTURING COMPANY, INC.

617 N. Prince St. • Lancaster, Pa.

"Over a quarter of a century experience"

Officers Elected

At the afternoon session, officers for the year were elected. C. L. Jennings, New London, was named president while C. C. Rasmussen, Ida Grove, and T. C. Parker, West Branch, were returned to the posts of vice-president and secretary-treasurer respectively. Members of the board of directors are S. R. Ames, Lincoln, retiring president; Art Vinson, Fort Dodge; and C. Bonnickson, Ringsted.

Earlier, the group heard Tom Thorpe, Jr., give a report on the recent National Water Well Exposition. The report was prepared by his father, Iowa's representative to NWWA, who was unable to attend the session because of illness. G. F. Briggs of Edward E. Johnson, Inc., St. Paul, Minn., led a discussion on

PIPE YOUR JET WELLS IN ONE HOUR...

with *Carlon* PLASTIC PIPE

Amazing speed is possible when you pipe your jet wells with CARLON plastic pipe. This lightweight pipe is furnished in long lengths which utilize a minimum number of fittings. The need for special tools and materials handling equipment is eliminated.

CARLON has a trouble-free service life many times longer than ordinary pipe. It is **guaranteed against rot, rust and electrolytic corrosion,** will not accumulate scale, and is unaffected by corrosive waters.

In Elk City, Oklahoma, a 74-foot well was recently **piped with CARLON in one hour and three minutes.** The complete installation, including connecting the pump and putting it into operation, was accomplished by two men in this short time.

Specify the Pipe with the Stripe!

Write today for free catalog

378-CP

CARLON PRODUCTS CORPORATION

IN CANADA: MICRO PLASTICS, LTD., ACTON, ONTARIO

10300 MEECH AVENUE • CLEVELAND 5, OHIO

the procedure to be followed by water well drillers in applying for controlled materials for water well drilling.

Despite the emphasis on business, a full entertainment program was presented. A combination Dutch lunch-stag smoker was held for the men Wednesday evening while the ladies were entertained at dinner. Square dancing for all followed. On Thursday evening the annual banquet was held, followed by entertainment and dancing.

Michigan Association Forms Local No. 12

Officers of the Michigan Well Drillers Assn., Leo Riegler, president and Harold Armstrong, secretary, recently reported formation of local No. 12 in Ludington, Mich., Jan. 12. Elected officers of the local installed by the state assn. representatives are Lyle Frick, pres. and Glen W. Chase, secretary.

After the new officers were installed there was a dinner, followed by further discussion and plans for the new local.

Everite Appoints Sales Manager

The Everite Pump and Mfg. Co., Lancaster, Pa., has recently announced the appointment of Paul P. Emery as General Sales Manager. Emery succeeds J. B. Trotman who retired in December, having been with the company as Executive Vice-President and Sales Manager since 1949.

For the past three years Emery was Manager of the company's

Your Best Crew Does Even Better With

GLEASON

DRILLING MUD

HERE'S WHY: Gleason is a new type water-well "drilling mud" that cuts non-productive time to the bone. Both laboratory and field tests show it lets you drill farther ahead of the casing; that it makes pipe driving easier, too. Gleason helps lubricate the bit, floats out the cuttings. And, while Gleason builds a better wall to stop caving, it is formulated to wash out easily and quickly to assure maximum Gpm with minimum development time. Write today for prices and full details.

Another SPINKS *Uniformity* CLAY

H. C. SPINKS CLAY COMPANY, Inc.
P. O. Box 829, Paris, Tennessee
First National Bank Building, Cincinnati 2, Ohio
2149 E. 37th Street, Vernon, California

Southeastern territory. He has had broad experience in the pump industry having been associated for several years with the Fairbanks Morse Co. He was Sales Manager of Domestic Engine and Pump Co. Before joining Everite, he was Sales Manager of the American Hydro-Vac Co. in Brooklyn.

Iowa's Windy Well Sighs On and On

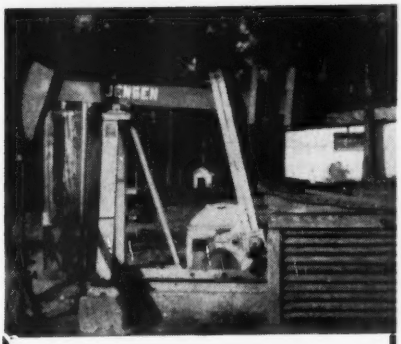
Reprinted from Des Moines Sunday Register

The boogie-woogie well of western Iowa hasn't run out of wind in 45 years.

The well is located on the Glenn Heckman farm three miles northeast of Anita. Air from some underground source still bubbles up through the water and sighs in the casing.

(Continued on page 26)

Susie, the burro, one of man's oldest means of transportation, is owned by the McClelland Supply Co., Phoenix, Ariz. She is used to make deliveries to out of the way locations. Like all burros, Susie has a limit on the weight she will carry and a "built-in scale" to tell her when she's reached that point. Susie's limit is 135 pounds — she stages a sit-down strike if another pound is added. Here she is carrying 1,200 feet of ¼-in. Carlon Flexible plastic pipe, weighing 124 pounds.



Pump Handle Pete Says:

Make friends and money with JENSENS

In these days of fifty-cent dollar bills its always a surprise to run across a real bargain in anything. That's why so many customers are dumfounded when they find out how little a JENSEN Jack costs.

For Drillers, this means the sort of customer relations that start long friendships. It is *good business* to recommend a JENSEN when you drill a well . . . your customers will thank you for it after the economical, low-cost, highly efficient Jensen has proved its worth time and time again.

Get the facts and figures on the Jensen. Write, or ask your favorite supply store to write 1016 Fourteenth Street, Coffeyville, Kansas, for prices and specs.

JENSEN BROS. MFG. CO. INC.

Coffeyville, Kan., U.S.A.

from the *MAILBAG*

This page is open to any of our readers having questions to ask relating to drilling, driving pipe, dressing bits, etc. All letters will be answered promptly by experienced drillers and engineers who are qualified to give intelligent advice on these subjects. We will publish as many letters of general interest as space will permit. Address: The Driller, South Milwaukee, Wis.

Reader Advises on Quick Setting Cement

Dear Sir:

I noticed in the December issue of The Driller that some one asked where to obtain quick setting cement.

It can be obtained from Alamo Cement Co., San Antonio, Texas. It is called Alamo Red Bag Quick Setting Cement.

Here are my suggestions. You can take five pounds of salt and add it to one sack of cement. Make it up in a mortar box. Then put the mixture in a bailer with a dump chain and run it to the bottom just as you would if you were lowering water to drill with. Raise the casing about 12 inches and drive the plug to force the cement back of the pipe and then let the casing down to the bottom again.

For best results, let the cement set for about 48 hours. It will set quicker than that but it is best to let it set longer to be on the safe side.

W. B. S. **Texas**

WATER LEVEL INDICATOR

THE NEW MASTER WL FEATURING:

- SMALL, 3/8" D., ELECTRODE.
- TWO CONDUCTOR CABLE, NO CASING OR OUTSIDE CONNECTIONS NEEDED.
- METAL TAG CABLE CALIBRATION.
- HANDY REEL TYPE SPOOL.

250 ft. WL $37.50 f.o.b. Palo Alto*
500 ft. WL $47.50 f.o.b. Palo Alto*

*Includes one Extra Electrode
Additional Electrodes $1.00 each.

FISHER RESEARCH LAB., Inc.
PALO ALTO CALIF.

Drilling in Gravel Presents Problem

Dear Sir:

What is the best procedure to follow in drilling in gravel with large boulders every few feet? Would Aquagel hold this fine gravel from caving in and how far could I drill ahead safely if this jel would hold? Would Aquagel spoil the water for human consumption?

J. S. **Michigan**

Drilling gravelly ground containing large boulders presents a difficult problem for any driller. As a rule, in sand and gravel with small boulders the hole can be made most rapidly by driving the pipe ahead and then drilling out the plug, which has been forced up on the inside of the pipe. Where large boulders are encountered it is, of course, necessary to blast them out of the way, or drill past them. In driving pipe through a gravelly formation the blow used should be just heavy enough to move the pipe, that is, care must be taken to see that the pipe is not driven onto a boulder, which would collapse the end of the pipe or deflect it out of line.

When quicksand and fine gravel is

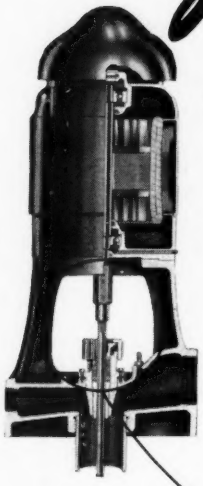
(Continued on page 28)

COMPLETE PACKAGE TURBINE...

The New *Jacuzzi 4*

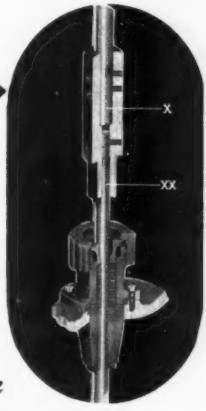
LINESHAFT TURBINE

For Wells 4" diameter and over



Here, at last, is a deep well turbine for all wells 4" diameter and over. This low cost Jacuzzi Pump is designed for homes and farms with deep wells, requiring a moderate but consistent water supply. The "4" is excellent for pressure system use and will serve well for irrigating either with sprinklers or open ditch. This water lubricated turbine includes all the latest features you usually find only in large, more expensive equipment. It uses a standard make, solid shaft motor for 1½, 2 and 3 h.p. installations and hollow shaft motors for 5 h.p. units. Recommend the Jacuzzi 4—it's easy to stock as a complete unit and is backed with years of experience in building turbines.

Check These Exclusive *Jacuzzi* Features



Perfect alignment between the shaft and the pump head is assured by the Jacuzzi 4 Line Fit Coupling. Note the line fit "X" and "XX" which are precision bored concentric with each other.

The removable bronze stuffing box with replaceable head bearing permits perfect alignment and centering of the stainless steel headshaft with the head by allowing the shaft to stand square.

Send today for Free literature

JACUZZI BROS. INC.

5327 Jacuzzi Avenue • Richmond, California

BITS from the wit sharpener

Pat came home with a much battered countenance; Biddy asked: "What happened?"
"Oh Cassidy and I had a set-to."
"An' would you let such a little squirt like him beat you up?"
"Tut-tut Biddy; don't shpeak disreshpectful of the dead."

A man was about to be tried in court for stealing an automobile. After the charge had been stated the judge turned to the prisoner and said, "You can have your choice of having your case tried by me or by a jury of your peers."

"What's peers?" asked the prisoner.

"Peers are your equals," replied the judge. "They are men of your own class—your own kind."

"You can try this case by yourself," replied the prisoner. "I ain't gonna be tried by no auto thieves."

Visitor: "Why it's only 12 o'clock. It seemed much later."
Native: "Around here that's all it ever gets. Then we start over."

A very much harassed husband never seemed to be able to please his complaining wife. On their wedding anniversary she bought him two ties, one red, the other yellow. He thanked her profusely, but she sighed: "Well, I guess you don't like my gift."

"But, darling, I do. I'm mad about them. I'll prove it to you." He proceeded to remove the tie he was wearing, put on the yellow tie and beamed: "There."

His wife looked at him sadly and sighed: "Don't like red, eh?"

A big financier detested lawsuits, and did everything possible to avoid them. One day he laid a case before his attorney. When he had finished, the lawyer said he would take the case.

"It's an ironclad case," exclaimed the lawyer enthusiastically. "We can't possibly lose."

"Can't lose, eh?" said the financier, "then we won't sue."

"But why not?" asked the lawyer, "it's a clear case."

"Because," explained the sage, "it wasn't my side of the case I laid before you. It was my opponent's side."

When the revenuers burst from the bushes, the gangling hill-billy moonshiner lit out at such speed that the men could only stand in slack-jawed awe and watch him disappear.

Long after the revenue men had left, the hillbilly still had not returned to his cabin. Hours became days, and his friends began worrying about him.

At last, on the fifth day, he stumbled in, a sorry sight. He was bearded and fatigued, his clothes were spattered with mud.

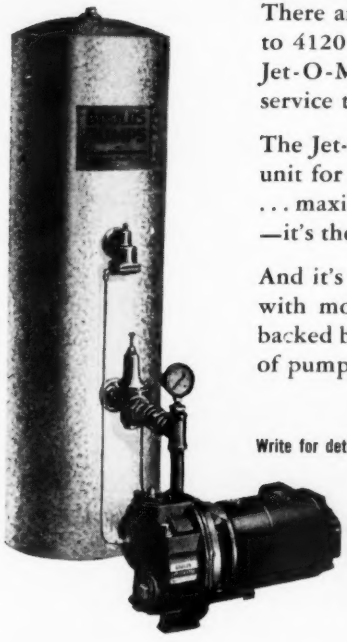
"Where you been, Ed?" one of his friends asked.

He sighed wearily. "I been comin' back."

Cop: "How did you knock this pedestrian down?"

Truck Driver: "I didn't. I just pulled up to him, stopped the truck to wait for him to pass, and he fainted."

"there's a Jet-O-Matic for the job!"



For any water requirement . . . any source—for *any customer*—there's a Goulds Jet-O-Matic that's right. There are units from ¼ H. P. to 5 H. P.; capacities to 4120 gallons per hour. And every dependable Jet-O-Matic delivers the trouble-free, profitable service that's the "pay-off" in your job.

The Jet-O-Matic is a *dual service* pump—one basic unit for either shallow or deep well. Low inventory . . . maximum coverage . . . minimum stock of parts —it's the ideal unit for profitable well driller sales.

And it's a *Goulds* pump—engineered by a company with more than a century of experience . . . fully backed by Goulds, the world's largest manufacturer of pumps exclusively.

GOULDS PUMPS INC. • Seneca Falls, N.Y.

Write for details on the Jet-O-Matic, and other pumps in Goulds complete line.

GOULDS

WATER SYSTEMS
Since 1848
FOR EVERY FARM AND HOME NEED

FAIRBANKS-MORSE

Submersible Pump

It's brand new! Operates entirely under water—including the motor! Water-lubricated; water-cooled. Pumps without noise or vibration. Only *one* pipe is needed inside casing. Has a capacity of 1,600 g.p.h. at 60-foot settings, and pumps efficiently at 400 feet. Ideal for farms, homes and country estates. See this new submersible pump at your local Fairbanks-Morse dealer's store. Or mail the coupon for complete information.

Fairbanks, Morse & Co.
600 S. Michigan Ave.,
Chicago 5, Illinois
Please send me full details on construction and operation of your new submersible pump.

Name.....

Address.....*RD*.....

City.....*State*.....

FAIRBANKS-MORSE,
a name worth remembering

News . . .

(Continued from page 21)

Some years ago local wags brought out a small pipe from the well and attached a child's horn to it. It tooted for days before the reed wore out.

There was talk of digging another windy well nearby and attempting to obtain harmony from the two, but nothing ever came of it — fortunately.

The well was windy from the day it was dug. It is 250 feet deep and water in it now is four feet deep.

Even as low as the well is now, the sound of air rushing up through the water is plainly audible, sounding like a boiling kettle.

Heckman says the well is windier in the spring, than during other seasons. He also said the water is very hard but it's all right to drink after it settles a little.

Drilling in Rock . . .

(Continued from page 8)

To conduct its drilling and pump business the Rhode Island firm, in addition to its six truck-mounted rigs, owns two stake body trucks and two pickups which it uses to carry supplies and to service the rigs when on drilling jobs. Two other trucks are used for pump installation and servicing work.

Although the record which the A & W Artesian Well Co. has made in central New England for the past 20 years speaks for itself, Mr. Worrall depends on advertising, to some extent, to bring in new customers. He runs an advertisement annually in the local telephone directory, and occasional ones in the local newspapers. Wall calendars are distributed each year, and billboard space is utilized to bring the company's name to the attention of motorists.

Mr. Worrall has always been very

What Odds Do You Give Yourself?

TAKE much of the gamble out of your drilling business — use modern Bucyrus-Erie water well drills. Their high-speed moves from job-to-job, the ease with which they're rigged up and torn down combine to give you more time for productive drilling. Their hard hitting drilling punch, centered in the famous Bucyrus-Erie drilling motion, means fast drilling even in hard and difficult formations. Their strongly trussed all-steel frames have the rigidity that holds operating parts in perfect alignment, keeping machine efficiency high and maintenance low.

Make the dollars you spend pay safe dividends with one of these dependable, up-to-date drills. Four models — 20-W, 22-W, 24-L and 28-L are available for drilling from 500 to 2,500 feet. Write today for complete information. 131W51C

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

active in promoting everything constructive that makes for better drilling conditions in his operating territory. When the New England Water Well Drillers association was organized in late 1950, he was one of the temporary directors appointed. A year ago, when the association formally adopted its constitution, the temporary officers and directors were elected for one year.

Mailbag . . .

(Continued from page 22)

encountered the use of Aquagel will be a big help in drilling the hole and getting the pipe down. The Aquagel will seal up the wall of the hole and hold the smaller boulders in place and greatly reduce the possibility of caving. It will also help considerably in retaining water in the hole for drilling.

Mix the Aquagel with water to a light consistency, so that it will pour freely into the hole on the top of the packed sand and at the same time pack some of the Aquagel of a heavier mixture into the water channels of the bit before running the tools. If you do this you should be able to drill out the plug, although it may take a while to get started, that is, until the Aquagel and packed sand get mixed freely so that the tools will penetrate it and permit the sludge to be bailed out.

After you have the plug drilled out the Aquagel should hold the walls of the hole to permit driving below the pipe and you should then be able to drive the pipe more freely. It may go slow at first, but after you get started you will probably be able to drive the pipe down to the desired depth. Aquagel is a Gel-forming collodial drilling clay, which settles and clears up quickly, therefore it is not harmful to water for drinking.

Vibrating . . .

(Continued from page 12)

this process, is being handled by Licencees. It was found that explosives could be compounded that were only one-ninth as powerful as some previously used. Thus the rate of delivery of energy could be reduced to 1/45,000 if desired without any reduction in total energy used. In this fact lies the safety of the method.

Bubble Cycle Gauged

The effect of large quantities of gas generated by explosions under water, has been carefully studied and recently released from security restrictions. Using high-speed photography and fast-recording gauges, the action has been investigated to reveal that the gas bubble forces the water to move away so rapidly that it produces an "afterflow", or an enlargement of the bubble beyond its normal capacity. This over-inflated bubble condition is easily overcome by the hydrostatic pressure surrounding it, again at a rapid rate, so that the bubble contracts. The cycle thereupon repeats itself with diminished energy. About ten cycles are completed before the energy is substantially exhausted. This bubble cycle being confined in a water well casing can find exit only through the openings or perforations. This produces a thorough washing of the incrusting materials, vibrated loose by the use of the shock wave of explosion.

The second, and final, part of this article deals with the method of using, and effectiveness of vibratory explosives. It will appear in a future issue.

BARGAIN Counter

All advertising in this section is payable in advance. Enclose your check or money order with copy. Rate 60c per line. Minimum charge $2.40. No discounts; no commissions. Count your own copy to avoid delay. The average line contains 28 characters (20 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number if blind advertisement is desired. Closing date — 10th of preceding month. Example — January issue closes December 10th. Be sure to address separate inquiries to each advertiser by using the correct box numbers. Mail Box inquiries care of THE DRILLER, South Milwaukee, Wis.

DRILLS FOR SALE

Failing, Sullivan and Franks, rotary drills, complete, tools, drill pipe, etc. Priced $4500 to $8500. Fred E. Butler, Box 1832, Casper, Wyo.

Howell No. 160 drilling machine, capacity 1600 lbs. tools, in very good running condition. With complete string of 6" tools. Price $1600.

No. 3 Keystone friction hoist rebuilt out of steel, Bucyrus-Erie shock with 6" tools. Mounted on 1936 GMC truck, in good condition. Price $1200.

No. 3 Keystone wood drill clutch hoist. Suitable for cable or rope with spring shock in derrick. Price $400.

Harry Green, Damascus, Maryland. Telephone Damascus 3811.

1948 Bucyrus-Erie 22-W, trailer mounted, Hercules 6 cyl. Casing reel & catheads. All in good shape. Jim Feighny, Julesburg, Colo. Phone 294.

240 Speed Star rig in first-class condition. Self-starter power unit, slow-speed catheads, 33' mast and a complete string of 4" tools. Rig mounted on K5 International truck. Truck in first-class condition. Good tires and will go anywhere. Rig now drilling. George I. Warner, McBean, Georgia, phone 4-2632.

DRILLS FOR SALE

Bucyrus-Erie 22-W drill mounted on 1½-ton 1940 Diamond T truck. Two strings of tools: two 4", two 6", two 8" and one 16" bits. One set of 4" jars. 4", 6" and 8" bailers. Two sets tool wrenches. 4", 6" and 8" drive heads. Rig ready to go. Price $4250. Swartz & Biggs. Atwood, Ill. Phone 3861.

33-W Bucyrus-Erie drill. Good condition. Recently overhauled. 40 H.P. motor. 38 ft. derrick. Mounted on Chevrolet 2-ton 1944 truck. Reasonably priced. Box 455

240 Speed Star combination cable tool & hollow rod mach., new Oct. 1946, no hose or rod, pump never used, mounted on 1930 2-ton GMC truck. Truck motor not in running order. LeRoi XP10 drilling motor, approx. 750 ft. ⅝ and 5/16 drilling and sand lines used very little. Machine idle since July 1950. Tool wrenches, two 6" bits, drilling jars, swivel socket, 3¼"x12' drill stem, 5"x12' bailer, 1⅝x2⅝-7 API joints. $3200 cash or will accept $1200 cash and $2000 credit on new Bucyrus-Erie 22-W for Oct. 1952 or later delivery, to be financed in 24 equal monthly payments, or will consider reconditioned 72 Star, 24-L Bucyrus-Erie, or 25 Ideco under above terms. A. S. Copas, 539 E. Oakridge, Ferndale 20, Michigan.

No 42 Sanderson Cyclone drill mounted on 1941 Mack truck.

No. 40 Sanderson Cyclone drill mounted on 1938 GMC truck. These machines and cables in best of condition and guaranteed. Cleo Enfield, Buffalo, Iowa.

No. 50 Keystone drilling machine equipped with calf reel and line spooling device on skids ready for mounting on truck. In first-class condition. $3000. H. F. Norris, Glasgow, Kentucky. Phone 2291.

1948 Model No. 10 Ideco spudder with 31 ft. telescopic mast, Continental 4-cylinder motor overhauled, power lift on mast, mounted on 1938 Dual Wheel Chevrolet truck. Located in Central Michigan. Priced at $2200. Box 456

DRILLS FOR SALE

Ideco No. 10 spudder mounted on 1½-ton 1940 Chevrolet truck. Only 3 years old. Power derrick hoist and electric starter. Both machine and truck in good condition. Price $2000. Located Indiana. Box 453

No. 16 Ideco dual rear wheel semi-trailer, with trailer landing gear, casing reel, catheads, 36' telescopic derrick. XAHU Waukesha engine, just overhauled. 500 feet ⅝" drilling cable, 500 feet ⅜" sand line. Machine in good operating condition. Located Michigan. Price $3400. Box 454

Keystone 50, 700 ft. ⅞ cable and sandline, tools from 10" down to 6". Bailers and fishing tools to go with machine. Mounted on Chev. tandem truck. This machine in excellent condition. E. Andrews, 206 Stuebenville Ave., Peoria, Ill. Phone Peoria 9035.

Home made drilling machine for jetting and drilling, 22 h.p. Hercules motor, mounted on 1941 Ford, no cab, 32 ft. mast spring shocks—good condition. M. M. Martin, Okeechobee, Florida.

Bucyrus-Erie 21-W drill mounted on 1935 Ford truck with a complete string of 6" tools with 2x3-7 API threads. 500' practically new drill cable and sand line. Located southeastern Wisconsin. Box 436

Bucyrus-Erie 22-W drill complete with derrick hoist, spooling device, casing reel, starter and generator, mounted on 1940 Chevrolet cab over truck, two speed axle. Machine and truck in good condition. Price complete for machine and truck $5000. Hoeg and Ames, Lincoln, Iowa.

Two Keystone No. 50's, one No. 40 and No. 70. Trucks and machines in excellent condition. Also No. 1½ recent eng. overhauled in good condition. Misc. tools for 6 and 8" work. 2¼x3¼-7 API joints. N. Cristy, Pleasantville, N. Y.

(Continued on page 30)

DRILLS FOR SALE

(Continued from page 29)

Reasonably priced Stone drill machine #31, only drilled four 300 foot wells. J. P. Maharrey, Rt. 1, Fort Myers, Fla.

Bucyrus-Erie 22-W, with casing reel and spooling device. About three years old. Mounted on 1942 Ford truck with two-speed axle. 700' drill cable and sand line.

Also 1948 IHC Platform truck and complete string of tools for 6, 8 and 10-in. wells. All equipment in excellent condition and available for immediate delivery. Earl Acker, Route 14, Box 632, Milwaukee 14, Wisconsin. Phone: SUnset 2-8320.

Bucyrus-Erie 21-W in good condition, mounted on a good used truck. New drill rope and set of 5⅝", 200 lb. drill bits that have never been sharpened. Also 4"x20' drill stem. G. B. Holbert, Crossville, Tenn.

Bucyrus-Erie 21-W drill mounted on 1½-ton truck. Reconditioned and painted, with 4" tools and cables.

No. 12 Ideco, less tools and truck, but with drilling and sand line.

Write or phone A. L. Cox & Company, Inc., 3010 Mishawaka Avenue, Phone: 43550, South Bend, Indiana.

Bucyrus-Erie 36-L drill in good condition with Buda L-0525 which runs on gasoline, butane or natural gas. This rig is completely equipped for irrigation well drilling and has dog-house, tool crane, forge, ram and International K-7 truck. Box 450

Bucyrus-Erie 22-W, semi-trailer mounting recently installed. Buda 4 cylinder engine. 36' telescoping derrick with power hoist. Casing reel. Fully equipped for 6 inch work. Located near Milwaukee. Excellent condition. Priced reasonable. Box 444

Two 71 Star drills. One mounted 1930 Ford truck, good rubber, complete set 6" tools, all in good condition. One mounted 1937 White truck, complete set 6" tools, excellent condition. Contact Bunnell Well Drilling Company, Route 80, North Branford, Conn. Phone 8-3369.

DRILLS FOR SALE

No. 160 Howell machine mounted on 3-ton International truck with winter inclosure. 1500' of ⅜" drill line, some of sand line. Two drill stems, one 3", one 5". Two 5½" drill bits. 4, 5, 6, and 8" drill bits. Two 4" bailers. 5⅝ swedge bit wrench, hand tools, jackscrews, etc., grease outfit. Jetting attachment complete mounted on two-wheel trailer, twin-cylinder jetting pump 4½" powered by 4-cylinder LeRoi engine 3¾x3½" bore, gasoline or natural gas manifold. 150'1" extra heavy drill rod.

1937 Ford water tank truck power take-off pump.

Portable electric welder on two-wheel trailer Hobert type M.B. 200 amp. 4-cylinder gasoline motor, used very little.

Rig in A-1 condition. Hasn't been used since it was overhauled. Price $5.000. Carl Settle, Box 677, Wibaux, Montana.

K-4 Loomis all-steel rig with 34' telescopic derrick mounted on 1941 cab-over-engine Chevrolet truck. Complete with tools and cable. Available April 15. Price $2500. Box 448

Bucyrus-Erie 22-W purchased new 1947. Type "E" semi-trailer mounting. Buda Hp-217 gasoline engine. Casing reel, spooling device, tool guide and fan blower. Also drilling tools, 5⅝" diameter holes, including swivel rope socket, jars, 4"x18' stem, drill bits, tool wrenches, dart valve bailer, etc. Drilling cables also included. All first-class condition. Located Florida. Will load on freight car. Machine operating every day. Priced to sell. F. L. Thompson, 120 Bayless Ave., Florence, Alabama. Phone 1659W.

Well equipment. Good used spudders, rotaries, tools. We sell them. We buy them. Contact us if you want to buy or sell. We rent fishing tools. Everything for well drilling. Write or phone. Pressey & Son, Pueblo, Colo.

MISCELLANEOUS FOR SALE

FOR NEW AND USED CABLE DRILLING TOOLS AT BARGAIN PRICES, send for new list 4600 items, 75 stems, 75 bailers, sand pumps, 150 drill bits 4 to 13 inch. Largest selection in eastern states, 7 acres of bargains. TRI STATE TOOL & SUPPLY CO., Box 827, Parkersburg, W. Va.

MISC. FOR SALE

Fairbanks-Morse and Pomona deep well pumps; oil and water lubricated; 30 hp; 1000 ft. 4" column; 1000 ft. 5"; complete with all fittings. Removed from Army camp; used very little; best condition; priced right for quick sale. General Wrecking Co., 3304 Chouteau, St. Louis, Mo.

200 Amp. Lincoln portable welder with idling device. In excellent condition. $485. J. Bolliger Sons, Fairbury, Ill.

EQUIPMENT WANTED

Wanted: Bit dressing machine for 5⅝" bits. Also well drilling rig. Bucyrus-Erie 20-W or equivalent, any condition. Details in first letter please. J. Merle Gillaugh, 421 W. Louther, Carlisle, Pa.

Wanted: Swage for 4" diameter wells for Johnson brass screen. Also one for 6" wells brass screen. Carl Bolliger, 411 East Oak, Fairbury, Illinois.

Wanted: 6" drill for 3" diameter bar 1½"x2¼"-8 API. Good used welder 200 or 250 amp capacity, 4 cyl. V-Type motor preferred. Also sub for pin 1½"x2¼"-8 API to box 1⅝x2⅝"-7 API. Carl Bolliger, 411 East Oak, Fairbury, Ill.

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Established concern with 30 years of successful manufacturing experience has openings for sales representatives to handle domestic pumps and water systems, water conditioning equipment, cellar drainers and electric drinking water coolers. Write Box 452, c/o The Driller.

POSITIONS WANTED

Experienced driller desires position in the Mediterranean area. Box 446

Experienced driller seeking job somewhere in the mid-west, south or north. Age 32, family man and don't drink. Box 449

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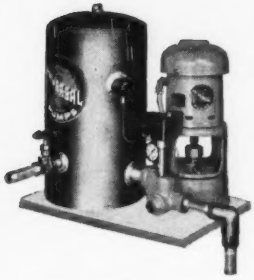

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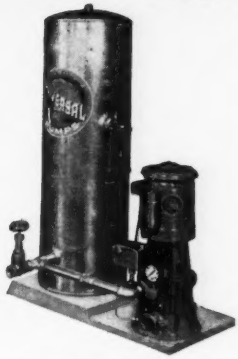

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"There's a Universal for you!"

Almost on the customer's porch this 24-W is drilling 8-in. well in Millville, Mass. Bit dressing is done on the job, note anvil and cooling tank. Story of contractor's operations begins on page six.

The Driller

The monthly magazine for water well drillers

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